

MEETING MINUTES

Date: February 28, 2014

Place: NDEP Carson City, Nevada Office

Project/Purpose: NV Energy AOC Future Direction

Attendees: Greg Lovato/NDEP
Scott Smale/NDEP
Alison Oakley/NDEP
Tony Garcia/NVE
Mike Rojo/NVE
Sergio Escobar/CDWR
Becky Svatos/Stanley Consultants

Tony began the meeting by stating he wanted to have this meeting because he feels that the AOC process can move forward more quickly and effectively, particularly the process of moving from data collection to decisions, which became evident during the January 28, 2014 meeting to discuss the Background Conditions Report. NVE is preparing a workplan to investigate groundwater interaction with the Muddy River. This will be a large effort and NVE wants to be sure that the data collected will be accepted by NDEP and will result in a conclusion rather than a request for more data collection. NVE needs to tell its new owners and its own management how long the AOC process is going to take and what it will cost. This is complicated because of the high degree of uncertainty in the process. Greg stated that when he first reviewed the AOC, he saw more process steps than he saw at other sites. However, from the one meeting he attended and what he heard from Alison he thought things were progressing well. The source report was approved and the process was moving forward to address the identified sources of contamination. The continued focus on the Muddy River as a potential receptor seemed appropriate. He was surprised at NVE's concerns, but was happy to have this meeting to discuss the path forward for the AOC. It was agreed that the AOC allows flexibility to take alternate approaches to reach a satisfactory conclusion.

Scott said that approval of the background concentrations was being held up largely by arsenic. He said background concentrations are needed at sites for three reasons:

- 1) To establish if a release occurred
- 2) To set action levels when naturally occurring concentrations are greater than drinking water standards
- 3) For use in risk-based corrective action decision-making regarding existing and future receptors

At the Station, it is clear that a release has occurred. Background concentrations will not drive groundwater treatment because NDEP does not expect groundwater at the Station to be restored to background concentrations. Rather, background concentrations at the Station will be used as part of risk-based corrective action decision-making. For example, any mass flux of contaminants to the Muddy River might be estimated by taking the total mass flux and subtracting the background mass flux.

Scott said that he reviewed the Closure Plan and it needs to be updated to include regulatory changes that have occurred since 2008. He said that a risk-based corrective action approach should be taken at the Station. When evaluating the potential future risk to the nearest downgradient drinking water well, NVE should give technical reasons why the groundwater contamination will not reach the well such as upward gradients in the alluvial groundwater, depth of the downgradient well, limited contaminant migration in the alluvial groundwater, etc.

The planned study to evaluate potential interaction between the alluvial groundwater and the Muddy River at the Station was discussed. Alison suggested that sediments should be sampled because they might be impacted if groundwater particles settle out. Becky pointed out that the particles in groundwater would be filtered out as groundwater moves through soils and the river bed into the river water. Becky also stated that there is limited information on how to evaluate sediment concentrations. It was agreed to focus on the river water.

Prior to submitting the Muddy River Workplan to NDEP, it was agreed that NVE/Stanley Consultants would do the following:

- 1) Summarize available Muddy River data collected by NVE and SNWA
- 2) Evaluate compliance with applicable water quality criteria
- 3) Identify existing impairments of the river for identified beneficial uses
- 4) Evaluate changes in water quality from the upstream end of the Station to the downstream end
- 5) Make mass transfer calculations based on assumptions that would estimate the maximum and minimum mass transfer to the river using available information
- 6) NDEP stated that for TDS, a screening level evaluation could be used to evaluate whether there is more than one ton/day of TDS entering the river from the Station. This is a threshold used in Nevada for allowable irrigation return flows.

A meeting will be held to discuss the above information. After that meeting, the draft Muddy River Investigation Workplan can be prepared and submitted to NDEP with clear objectives regarding the data collection and evaluation. Evaluation of groundwater impacts to the river will rely on a risk-based corrective action approach using multiple lines of evidence (source removal at ponds, stable/shrinking groundwater plume, compliance with water quality standards, water quality changes as river flows through Station, etc.). The workplan should focus on key parameters of concern based on the data evaluation described above.

NVE provided a list of discussion topics prior to the meeting. Although it was not expected that NDEP would make decisions regarding all of these topics in the meeting, they were discussed. The discussion of these topics helped frame the issues and the future direction of the AOC. The following summarizes the discussions regarding these topics.

Preliminary Decisions/Guidance

1. Written final approval of background concentrations for soil and groundwater.

NDEP will approve the background concentrations for soil, Muddy Creek-Mesa groundwater, and Muddy Creek-North groundwater. NDEP will notify NVE if it has comments on the Background Conditions Report that need to be addressed. NVE/Stanley Consultants will revise the Background Conditions Report to address NDEP's comments and to state that the alluvial background groundwater concentrations are estimated levels that will not be used for remedial decision-making at this time because a risk-based approach will be used. NDEP will then

approve the report. The alluvial background groundwater concentrations may be revisited in the future as an amendment to the Background Conditions Report.

It was agreed that the Muddy Creek-Mesa background groundwater concentrations could be used to demonstrate that no further action is required on the mesa other than following the landfill permit. NDEP does not think the mesa sources are impacting groundwater.

2. Source removal at the ponds is complete when the groundwater table is reached.

The NDEP agrees that primary source removal at the ponds may be terminated when the groundwater table is reached. NDEP will not require solids removal below the groundwater table in the area of the ponds. NVE will collect soil samples with depth in the ponds to evaluate how concentrations change with depth. It is possible that the duration of groundwater monitoring may be less if more solids are removed. The key receptor of concern is the Muddy River. Therefore, in the area of the Unit 4 ponds where the river is believed to be a losing stream, there is currently no known reason to remove solids below the water table. However, the proposed Muddy River stream study will confirm if sections of the Muddy River that run through the plant area are losing streams.

3. The lateral extent of affected groundwater has generally been delineated.

NDEP concurs that the lateral extent of groundwater contamination has been defined to the north and south by the background wells and is generally determined to the west. To the east, the lateral extent of groundwater contamination is not sufficiently delineated.

4. Affected groundwater in shallow alluvium does not extend into the underlying Muddy Creek Formation.

NDEP agrees that the alluvial groundwater contamination is not migrating into the underlying Muddy Creek Formation. The upward gradients are preventing this migration. NDEP believes there are plenty of well clusters at the Station that show decreasing concentrations with depth.

5. It is technologically impractical (as described in NAC 445A.22725) to clean up groundwater at the Station to background conditions (see February 2008 Closure Plan approved by NDEP on 3/12/08).

The NAC rules regarding technological impracticality of remediation were revised in 2009. NVE/Stanley Consultants will revise the Closure Plan to include the updated rules. Prior to the rule revisions, NDEP was never using the technological impracticality waivers. These impracticability waivers can be used now under extreme circumstances, but NDEP stated that the risk-based corrective action rules would be more appropriate for the Station.

6. Groundwater data indicate limited contaminant migration since the ponds were built 30–40 years ago.

NDEP supports the idea behind this statement and said that the contaminant plume is steady and inputs are controlled.

- 7. After source removal at the ponds is complete, parameter concentrations in affected areas of groundwater should begin to attenuate.**

It is uncertain whether or to what degree concentrations will attenuate. Because some of the contaminants at the Station do not biodegrade and because the soils are so tight, some of the concentrations may not significantly attenuate, and will have little or no contaminant migration.

- 8. No receptors are currently being adversely affected by the Station.**

NDEP stated that the appropriate way to phrase this would be to say that there is no imminent and substantial threat from the contamination. If there were an imminent and substantial threat, NDEP would take immediate action.

- 9. Corrective action beyond pond solids removal will not be required unless affected groundwater presents unacceptable risk to human and/or environmental receptors.**

NDEP concurs with this statement.

Criteria/Approaches to Reach AOC Completion

- 1. Water quality criteria will be used to evaluate the need for action to protect the Muddy River (see February 2008 Closure Plan approved by NDEP on 3/12/08).**

NDEP believes that the potential impact to the Muddy River should be evaluated using a groundwater risk-based corrective action approach as well as other lines of evidence. The agency does not believe that the potential impacts to the river should be approached as a Clean Water Act matter because it does not appear that the river is currently showing impacts. The lines of evidence will include a direct comparison of the water quality in the river with applicable water quality criteria as well as an evaluation of river water quality changes as it flows through the Station and TDS loading to the river. In addition, source removal at the ponds and a steady or declining groundwater plume will be used to evaluate the potential risk to the river.

- 2. In addition to a technological impracticability (TI) waiver, institutional controls can be used to allow affected soil and/or groundwater to remain at the Station.**

As described above, the technological impracticability waiver approach should not be used; a risk-based corrective action approach should be used. Institutional controls can be used to allow contamination to remain in place and make sure that future receptors are protected. NDEP now has a template for institutional controls and has used them at a number of gas station sites. NDEP indicated that NVE may be required to conduct a corrective action alternative study generally compliant with the federal Superfund process. NVE clarified that this site is not a Superfund site and therefore the Superfund regulatory analogy is not appropriate. NVE would follow the applicable State regulatory requirements. The corrective action alternatives study should include pump and treat as well as other alternatives and evaluate these alternatives based on the risk reduction benefits versus the costs. A risk-based approach based on data collected to date and additional data to be collected as well as Institutional Controls should be included in the evaluation and may be considered the preferred alternative.

- 3. Groundwater that has been affected by Station operations, which is now beneath property owned by others, will be addressed only by monitoring to ensure that there are no unacceptable risks to human and/or environmental receptors.**

As described above, a risk-based corrective action approach will be used along with institutional controls.

- 4. Remedial goals for affected groundwater areas can be considered to have been achieved with steady or declining (asymptotic) concentrations, per 445A.22745 (see February 2008 Closure Plan approved by NDEP on 3/12/08).**

This part of the NAC is used to determine when to stop a remedial action. These rules will not apply at the Station unless active treatment such as pump and treat is pursued.

- 5. Sentinel wells upgradient of potential receptors can be used to verify protectiveness of the remedy for those potential receptors.**

Sentinel wells might be used, but may not be necessary if the risk-based corrective action approach demonstrates that the receptors will not be impacted in the future. Sentinel wells could be part of the institutional controls. The nearest drinking water well on the former dairy property is in the alluvial aquifer but is 200 feet deep. NDEP felt it was unlikely that the shallow groundwater contamination at the Station would reach this drinking water well. Sentinel wells between the Station and the Muddy River might be used.

There will be long-term groundwater monitoring at the Station, but it might be only annual monitoring of a limited number of wells. There could be 5-year reviews of the monitoring data that would be used to determine whether additional groundwater monitoring is necessary.

Timing:

- 1. By the beginning of Q3 2014—NVE and NDEP will reach agreement on path to conclusion of AOC.**

The path to conclusion of the AOC was largely agreed to at this meeting.

Tony stated that NVE is willing to pay for one person (NDEP employee or contractor) dedicated full-time to their project if that will expedite the AOC completion.

NVE will provide to NDEP a schedule of activities for 2014 and 2015 to help NDEP anticipate the amount of their time required.

Everyone agreed that a team approach to the AOC is most efficient. Where possible, meetings will be held to discuss and develop approaches prior to sending written submittals to NDEP. This should reduce the time required to finalize reports and implement solutions.

Action Items:

NDEP:

- 1) Provide comments that NVE should address in the resubmittal of the Background Conditions Report.

NVE:

- 2) Revise Background Conditions Report after hearing from NDEP regarding additional comments. The revised report will state that the alluvial background groundwater concentrations are estimated levels that will not be used for remedial decision-making at this time because a risk-based approach will be used.
- 3) Provide schedule of activities planned in 2014 and 2015.
- 4) Summarize Muddy River data as described above and develop range of mass flux calculations. Schedule meeting to discuss with NDEP.
- 5) Provide Muddy River Investigation Workplan to NDEP after meeting that includes clear objectives on data collection and evaluation.
- 6) Revise Closure Plan to address regulatory changes since 2008.
- 7) Collect soil samples with depth under ponds to evaluate changes in concentration with depth.